#12

An Essay on Acute Bronchitis. For the Degree of Doctor of Medicine, in the University of Pennsylvania.

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Acute Bronchitis.

Although this is a disease of frequent occurrence, it appears to have been but imperfectly understood until within the last few years. And even now, in this enlightened age of medical reason, were we to claim any thing like perfection in our knowledge, we should arrogate to ourselves more than properly belongs to us.

The various names under which bronchitis has been described has contributed not a little to the confusion which has hitherto existed. The bastard peripneumony as described by Sydenham, & afterwards by Cullen, corresponds to one of the forms of bronchitis of later writers. The pulmonary catarrh of various authors is nothing more than a more mild form of the same disease.

Its many & diversified complications with other diseases have also been a fruitful source

of error. Some of the symptoms which are peculiar to bronchitis have been attributed by authors to pleuritis & pneumonia. This circumstance is readily accounted for by the fact that two or more of these affections do exist at the same time. "Catarrh sometimes", says Cullen, "passes into pneumonic inflammation, & is attended with the utmost danger". And Sydenham when speaking of pleurisy says, "The matter expectorated in the beginning of this disease is small in quantity, thin, & often streaked with blood, becoming for the most part more copious as the disease advances". These facts go to show some of the difficulties with which physicians of the present day have had to contend, owing to the vague & unsatisfactory views which they have received from their predecessors.

It is to the labours of Bichat, who has contributed so much that is valuable in pathology & useful in medicine, that we are indebted for materials,

by which we are enabled to approach towards correctness & precision in elucidating the phoenomena of pulmonary diseases.

In treating of bronchitis, it is proper that I should in the first place make myself understood as to the precise meaning of the term. It appears to me that the most simple & rational division of the acute inflammatory affections of the lungs & their membranes would be, to designate inflammation of the pleura by the term pleuritis or pleurisy; when seated in the connecting cellular tissue or substance of the lungs, pneumonitis or pneumonia; and when the inflammation is located in the mucous membrane of the bronchiae & their ramifications, bronchitis. This, I believe, is the view of the subject which is now generally adopted.

Again practical writers & nosologists have distinguished the diseases of the respiratory passages by different appellations according as they happen

to affect different parts of the mucous membrane of this apparatus, or the one part more than another. Very commonly more than one, or even all those different parts are implicated at the same time: on this account there would seem to be little reason for the distinctions. So far as the diseases themselves are concerned, there is no difference between laryngitis, trachitis, bronchitis &c — they are all inflammations, and in their nature the same. But as different functions are disturbed according to the particular location of the inflammation, the distinctions are of obvious utility.

Causes. Bronchitis makes its appearance commonly at the beginning, but more frequently at the close of winter. Its causes are long & continued suspension of respiration, as in straining, singing, & blowing on wind instruments; inspiration of foreign bodies, as certain irritating fumes & finely powdered substances; diseases of the liver, stomach, & bowels;

reception of air or the exanthemata; suppression of accustomed discharge; and, lastly, the entrance of the body, or a limb into the lungs. But all these call in some one of its forms, also, for the most frequent cause of bronchitis.

It generally attacks such as are thus clothed or housed in the vicissitudes of our climate; or such as are much confined to warm rooms, being very susceptible of the slightest impressions from cold—hence the liability of delicate females.

Symptoms. In ordinary cases inflammation of the mucous membrane of the lungs is evinced by a slight hoarseness, straitness of the chest, wariness, and dry cough. These symptoms are generally of short duration, even without medical aid. The febrile symptoms soon subside, and the secretion becomes free and easy. Under these circumstances the disease, when properly managed, speedily proceeds to a favourable termination.

In more confirmed & violent cases all the symptoms present themselves in a more aggravated form. There is lassitude over the whole body, a general sense of weight & tension across the chest, the countenance is expressive of anguish, the respiration is quick & laborious, & sometimes noisy. The cough in the commencement is sometimes accompanied with a slight expectoration, though usually there is an unnatural dryness of the parts — the ordinary secretions being suppressed by the violence of the inflammatory action. The articulation is more or less indistinct, the patient being able to speak only in a low whisper; & there may be, though rarely, a total loss of voice. In many cases the disease is attended with some fullness of the vessels of the head, indicated by redness of the eyes, pain in the head, drowsiness & vertigo. The state of the tongue is various, but it almost always deviates from

healthy appearance. It is often dry, & the mouth feels clammy. There is much thirst & gastric uneasiness & an aversion to food of any kind. The urine is sometimes high coloured depositing no sediment, though very frequently it is not sensibly changed from its natural state. The pulse often in the beginning is not much increased, but as the disease advances it becomes more hard & full. Though a degree of fullness, we are told by Hastings, is more characteristic of bronchitis than hardness. In impaired constitutions, or those who have been injured by hard drinking, the pulse is often rather diminished than increased in strength. The face is for the most part flushed though sometimes pallid. The surface of the body is generally dry, and the temperature is seldom much greater than natural. The blood in most instances exhibits the buffy coat.

Prognosis. In regard to the duration of

this disease much will depend on how circumstances. In some it terminates in a few days whilst in others it runs on to a much longer period. When the attack is violent & the remedies employed fail to check its progress, "the pulse", says Hastings, "towards the 7th or 8th day becomes very quick & much weaker." Breathing becomes difficult & the anxiety & oppression is great. Occasional sweats break out. The nails & lips assume a livid hue; the countenance is distressed, anxious, & pallid; the whole surface of the body takes on in a measure this livid appearance — denoting obstruction in the lungs. There is sometimes a disturbance of the cerebral functions, as shown by a tendency to stupor & delirium. Soon afterwards the extremities grow cold, & sometimes a cold and clammy sweat breaks out on some portion of the body, frequently about the neck and face; the powers of the system rapidly sink, & the patient dies overcome by suffocation.

In cases which assume a less dangerous character than the one detailed, the more distressing symptoms begin in the course of three or four days to give way. The respiration becomes natural and easy, the cough is relieved by a copious expectoration, & the pulse is more regular & full. But the recovery after very violent attacks is always slow, the expectoration continuing for some time, and generally the patient does not recover his strength in some days or even weeks. In neglected and ill-managed cases, the disease often terminates in chronic bronchitis or catarrhal consumption.

Diagnosis. Much difficulty has existed, and much still exists in regard to the diagnostic signs of the diseases of the thoracic cavity. Even Cullen himself, who possessed such powers of discrimination, and who was so remarkable for clearness & precision in his descriptions of diseases

generally has written in quite an unsatisfactory manner in regard to this point. Notwithstanding the great and acknowledged difficulty of the subject, still there are a few symptoms by which they may, in a majority of instances, be distinguished from each other, and by which their coexistence can be determined. To the first of these objects my inquiries will be chiefly restricted, being in more immediate connection with the subject under consideration. And a violation of this determination would lead to a detail which would too far exceed the limits which I have alloted to this treatise.

As before stated we may in a great majority of cases be enabled to recognize bronchitis, although obscured by other diseases, either from the previous history of the case, or the actual state of the symptoms. But it does not always so happen, features so strongly marked as to remove

were doubtful and gave rise to errors. Bronchitis most frequently exists simultaneously with pneumonia; the latter is exceedingly often consequent upon the former. It is true we have too well marked diagnostics by which they can be distinguished from each other. It is even doubtful whether we can in some instances draw the line of demarcation. Fortunately this is of little importance in a practical point of view. It may, however, be distinguished from pleurisy with but little difficulty, and the same signs by which we are enabled to point out pleurisy, may, perhaps, assist us in some measure in separating bronchitis and pneumonia.

"The consciousness of the respiration," says Badham, "constitutes one of the least erroneous facts of bronchitis. In bronchitis there is no fixed or remittent pain, and the patient can turn on either side without any inconvenience. The distress of countenance is greater than in pleurisy. The cough is frequent

but weaker — "as Mr. Hunt states to be, when it wants the sharpness and vibration of the pleuritic pulse". This state of the pulse is owing to the mucous source into the bronchial cells, thereby preventing the blood from undergoing the proper changes in the lungs during the respiratory process. The proper stimulus of the heart is oxygenated or decarbonized blood, consequently whenever the lungs fail to perform their office, the energies of the heart will proportionately diminish — its contractile power will become feeble. A wheezing noise almost constantly attends bronchitis, never heard in simple inflammation of the pleura, and it is extremely doubtful whether it ever occurs when only the cellular structure of the lungs is inflamed. Expectoration is generally copious in bronchitis, not so in pleurisies and pneumonia.

If the disease yellow rubeola, or is consequent upon the recession of any of the exanthemata, it is

more than probable that it is located in the mucous membrane of the lungs.

The stethescope in the hands of those skilled in its use, is unquestionable of immense value in specificating bronchitis, as well as most of the thoracic diseases. But it would be an exceedingly difficult matter for one who has had no experience to point out its usefulness, or give directions for its employment. The best authors on this subject, among whom Laennec stands particularly conspicuous, should be consulted.

Pneumonia is known from bronchitis by its commencement with a greater degree of fever; and the cough in the latter named disease is dry and accurate.

In asthma the cough is slight neither is there any fever.

as may readily be distinguished from croup by the unusual sound produced by the cough and the accelerated, rarely stertorous respiration.

Expectoration when the mucous membrane red and inflamed, the mucous crypts enlarged, the bronchiae clogged with mucous of various thickness and sometimes a membrane is formed.

Pathology as to the true nature of bronchitis, all are now agreed to ascribe it to an inflammation of the mucous tissue of the lungs. But whether bronchial inflammation varies according to the cause from which it originates is a disputed point in pathology. The limited state of our knowledge does not admit of any positive conclusion in regard to this inquiry, neither is it my desire to incur the responsibility of declaration which I do not feel competent to maintain.

There appears to be some relation between

the diseases of the abdomen and thorax, but it is difficult to point it out. Their mutual dependence & how each other has been particularly urged by Hildings. Fever, inflammation and disease of the mucous inflammations to be repeated in other parts of the same tube. The connection of bronchitis with diseases of the skin is better established. This fact points out the importance of attending to the mucous membrane of the lungs in cutaneous affections. It is thus that pathology may be enriched with some valuable facts; and minute morbid dissection may show as many diseases of this membrane as there are diseases of the skin."

Treatment.

From what has now been said of this disease, it will be perceived that the treatment must vary according to the circumstances of each particular case. All that will be attempted at

present will be to point out some of the most important indications, and the manner in which they are to be combatted. Much in the management of this, as well as of all other diseases must be left to the ingenuity of the practitioner — always keeping in view the state of the general system — the nature of the local affection — and watching the particular symptoms which may arise during the progress of the disease.

In its most common and ordinary forms, the treatment is simple and easy. In the first place the patient should avoid exposure to any exciting cause, especially cold. It will be needed that which should consist of the least action and stimulating articles should be strictly adhered to. Medicine, however, and a moderate strict regimen are indispensable. The treatment, in the milder forms of bronchitis accompanied with

cures. Time and Nature, however. And, in time, these means in such cases will prove amply sufficient.

In more confirmed and obstinate cases are to be met by more energetic measures. To remove a disease the force of the remedies must correspond to the violence of the attack. And as this disease is one of an inflammatory character, we are to resort to such measures as are calculated to subdue inflammation.

The treatment of bronchitis may be divided into general and local. Of the remedies for reducing the general excitement of the system, blood letting is by far the most powerful and efficient; but it is not equally demanded in all cases. The quantity of blood to be detracted and the repetition of the bleeding are to be regulated and determined by the effects produced, & the condition of the system.

When there is little general excitement it is seldom necessary to detract blood, but if the fever be considerable and the breathing difficult bloodletting may be employed to some extent. "When the disease attacks children", says Hastings, "general bleeding should be employed as far as the strength of the patient will admit." But whilst we admit the propriety of copious bleeding, we contend that it is equally important to guard against the effects of a dangerous exhaustion. More judgement is required in confining our remedies to a proper limitation than in their selection. It is not owing to the poverty of our resources that our art in many instances fails to realize the most sanguine expectations, but it is often to be attributed to their harsh & indiscriminate employment.

From the beneficial effects of emetics in

croup, which is an analagous affection, we are led to expect something from their exhibition in this disease. Though there seems to be no doubt as to their occasional utility, yet they are not so urgently demanded. Their use, perhaps, is best adapted to children. They remove sources of irritation and promote expectoration. It is in the commencement or forming stage of the disease that I am disposed to repose confidence in emetics, with the view of producing a revulsive action upon the stomach, and determining to the surface. To fulfil this intention ipecacuanha & tartar emetic combined are to be prefered.

It is difficult to say how far purgatives prove beneficial in bronchitis. It is the prevailing opinion that they are not so effectual in removing inflammatory diseases of the thoracic as of the other viscera. But that

some of the ends to be obtained by emetics may be accomplished by purgatives is highly probable. Though they should not be used to the exclusion of other remedies of better established reputation (as Tartar emetic, in small doses), from the revolutionary powers which it exercises over the system, vomiting expectoration and all the secretions, is a remedy of great importance. When vascular action is sufficiently reduced, a combination of Cocoanut & Ipecacuanha may be employed. The conjoint action of these remedies fulfill three important indications in the treatment of this disease. First, by allaying cough. Secondly, by assisting expectoration. Thirdly, by producing perspiration.

Diaphoresis, when brought about by mild and lenient means, is always a salutary effort; when extorted by highly stimulating articles, it scarcely ever fails to do mischief.

Diuretics seem to be of little, if of any value in bronchitis.

In addition to the means already mentioned, the expectoration may be rendered more free and easy by any of the mild articles of this class, such as the mucilages and demulcents. Whilst there is much febrile excitement, opium is generally pernicious, but in properly reduced states of the system, combined with active expectorants, such as squills, asafoetida & the balsams, it is productive of great benefit. If spasmodic symptoms arise, opium or musk & asafoetida may be used.

Inhalations, as of Æther and Hoffman's Anodyne liquor, are also serviceable. In cases of old and feeble persons, fumes of resin are said to be very useful.

Towards the declining stage of this disease

an alarming state of collapse sometimes takes place. If the remedies employed fail to stop the progress of the complaint, the powers of the system give way, and the exhausted patient sinks with rapidity. In such an event we must endeavour to support the remaining strength of our patient, and relieve the bronchiae of the secretions with which they are clogged. To effect this purpose, practitioners almost universally prefer ammonia. In reality it seems to promise more than any other article, as its stimulating properties are least to be dreaded, and as it occasionally proves serviceable towards the decline of the disease, in promoting expectoration. But if a very great degree of exhaustion takes place, little can be expected from all our endeavours.

We are now to consider the local measures

to be employed, which constitute a very important part of the treatment in bronchitis. Of these leeches and cups are the most important — too much cannot be said in their favour — their operation is direct, speedy, & decisive. Different effects are produced by general and local bleeding. The former diminishes the action of the heart and large arteries, the latter relieves the capillary circulation. Taking this view of the subject, we are taught the necessity of each of these modes of detracting blood. The advantage to be derived from combining them is, that we thus more speedily relieve the patient, and without so great a loss of blood. "Whenever therefore", says Mr Hastings, "in bronchitis the symptoms require [illegible] we should also have recourse to local evacuation. This depletion is to be made by leeches or

cupping are to be applied in the immediate neighbourhood of the inflamed part. In cases where there is little or no general excitement, or as is sometimes the case, when the excitement of general bleeding are to be avoided owing to some adventitious circumstance, local bleeding either to a greater or less extent is to be employed.

Blisters are exceedingly valuable in this disease, but they are never to be used until the general excitement has been relieved by bleeding. In obstinate cases we should not be contented with a simple blister to the chest, but we should have one applied large enough to cover its whole anterior part. If the disease does not readily admit, the discharge from this surface should be kept up by a plaster of savin ointment, or some analogous preparation. In a

sinking condition of the system, blisters to the extremities are sometimes of great benefit. But in urgent cases of this kind sinapisms are on several accounts to be preferred; being very irritating in their nature and quick in their operation — arousing the abstracted energies of the system, and restoring a more equal balance in the circulation.

The rules laid down when treating of the milder forms of bronchitis are to be duly observed during convalescence from a more violent attack. We cannot be too careful in guarding our patient against the effects of a relapse. When the mucous membrane of the lungs has once been seriously affected, it becomes exceedingly liable to take on the inflammatory action — hence the necessity of the most strict caution; both as regards diet and new exposure.

Bronchitis, owing for the most part to neglect or bad treatment, not unfrequently passes into the chronic form. On the phthisically disposed it often accellerates the coming on of phthisis. And in aged persons it frequently proves fatal, the powers of their system being feeble; and when copious secretion of thick mucous takes place, which is nearly always the case in such individuals, they expectorate with much difficulty.

But free from complications and in good constitutions, the disease I do not conceive to be comparatively a dangerous one. The reason why it is not seems to be the readiness with which the bronchial membrane takes on the secretory action - in this way often relieving the congestion and inflammation. Did this opinion rest solely upon hypothetical grounds,

it would have been more cautiously ex-
-pressed. But when we take into consideration
the number that are affected with bronchitis
and escape uninjured, we are forced to
this conclusion.